

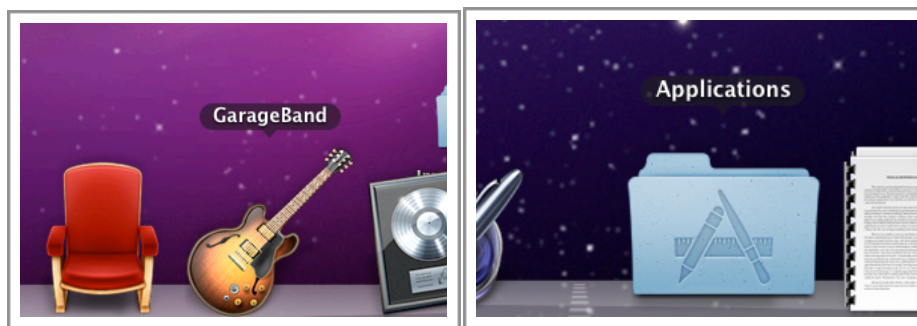
Three-Part Lesson with GarageBand 2009

Lesson One – Creating Loops

Step 1 – Open Garageband

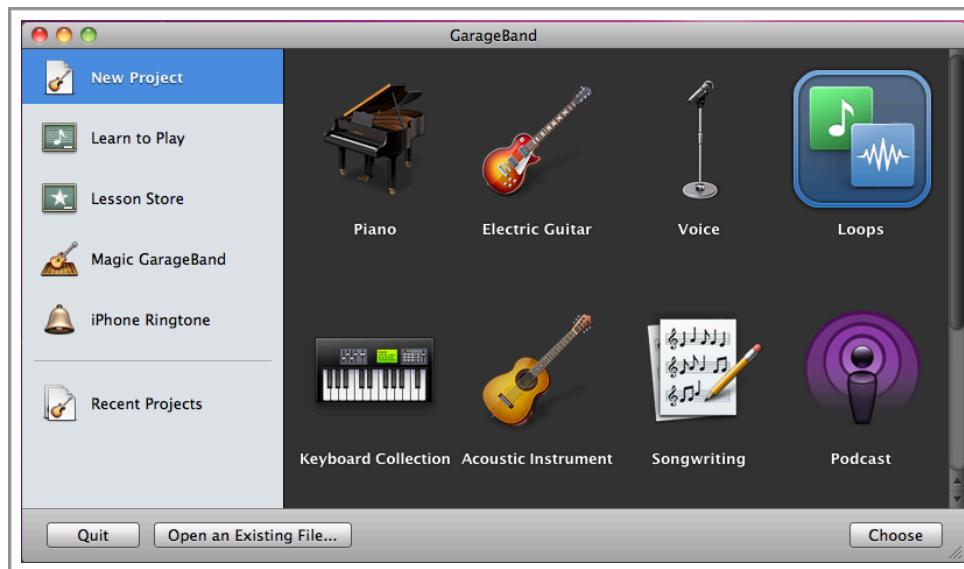
Purpose: Students will learn how to create their own compositions using loops through the process of “producing” with GarageBand. Students will also learn their way around the GarageBand interface.

Instructions: • You can find GarageBand on the application dock or in the Applications folder

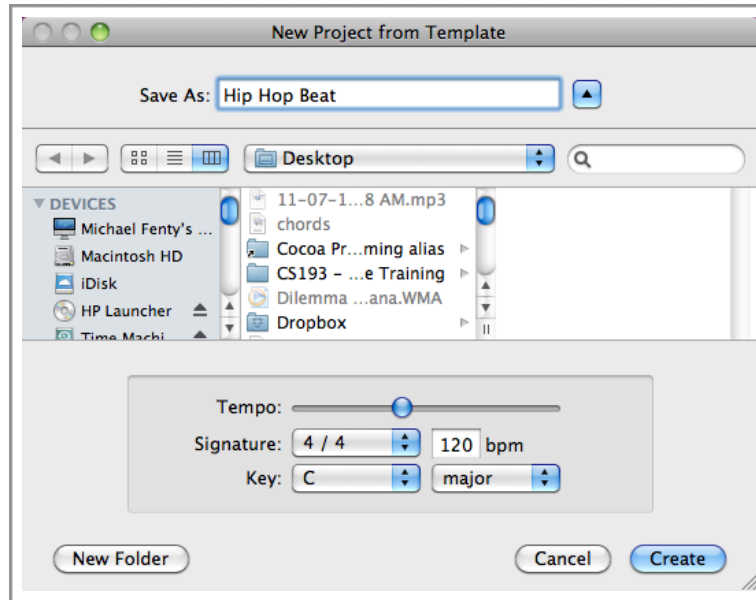


Step 2 - Create a Loop Project


Instructions: • Select **Loops**

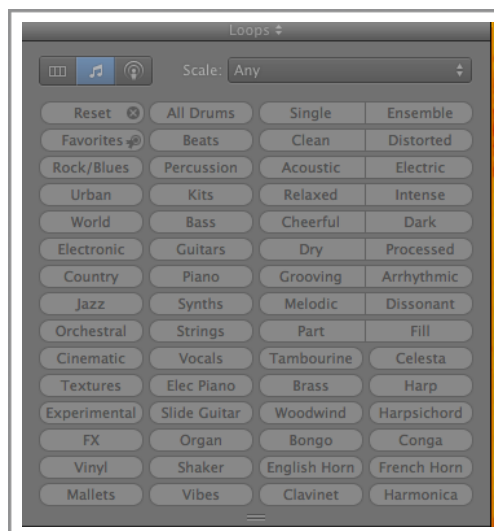


- Save your file
 - adjust the **tempo** using the slider or clicking directly on the textbox
 - adjust the **time signature** and **key** using the drop down menus
 - for help with navigating around Garageband see the **Getting Started PDF** in the help menu

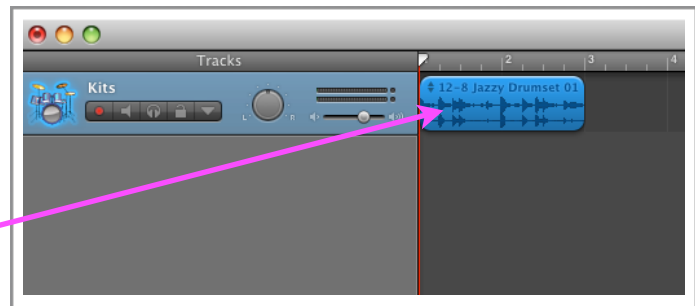
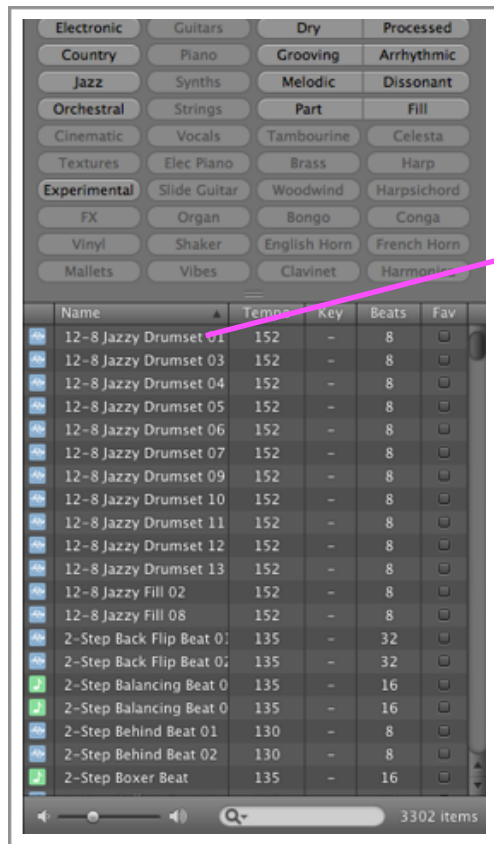


Step 3: Select Loops

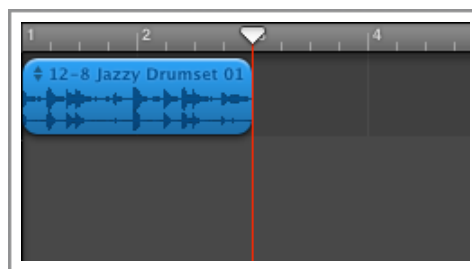
- Instructions:
- Click on the **loop browser**  button at the bottom right side
 - Select a loop from the browser



- We'll start by selecting a drum sample
- Drag and drop the sample from the browser to the timeline



- The loop can be copied by selecting it and pressing **⌘+C**
- To paste the loop, press **⌘+V**
 - Note that the loop will be pasted wherever the **playhead** is
 - The **playhead** is the red vertical line which can be moved by clicking on the measure ruler up top
 - By clicking on the number 3 on the measure ruler, the **playhead** is now at measure 3



- Additional loops can be added to the existing track or to a new track by dropping any subsequent loops below the first track (in this case the track called “Kits”)
- Loops can be repositioned by clicking on them and dragging them to a different measure or even a different track altogether

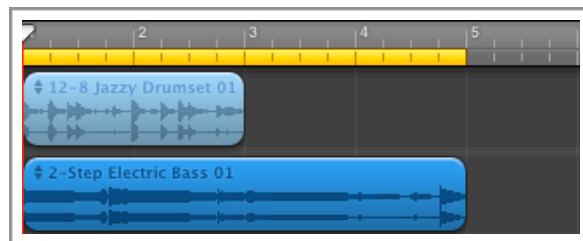


Step 4: Play your composition

- Instructions:
- The space bar will **start/stop** the project
 - Pressing “z” will **rewind** the project
 - Alternately, you can use the controls near the bottom



- The **cycle** button  allows you to loop a particular section of the project
- When turned on,  yellow indicators will appear on the measure ruler



- The project is looped from measure 1 to 4 as shown above
- Dragging the beginning of the yellow loop indicator with the mouse allows the beginning of the loop to be moved
- Dragging the end of the yellow loop indicator with the mouse allows the end of the loop to be moved

Lesson Two – Using Software Instruments

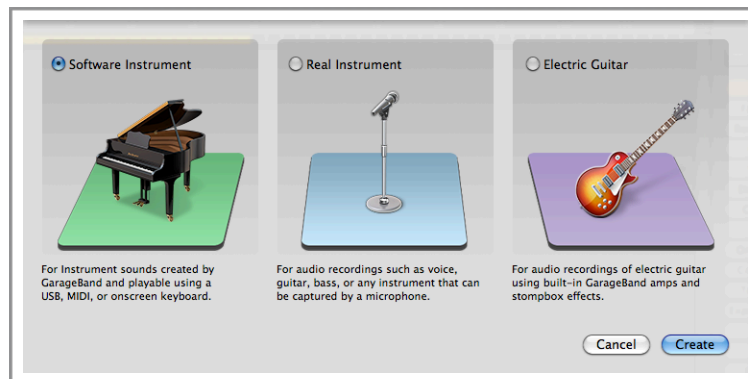
Step 1 – Create an software instrument

Purpose: Students will learn add to their own compositions through the introduction of **software instruments** in GarageBand. Students will learn how to create and edit MIDI notes through mouse input. This concept can be further extended by use of a MIDI keyboard interface.

Instructions: • click on the **plus** button at the bottom left of the window

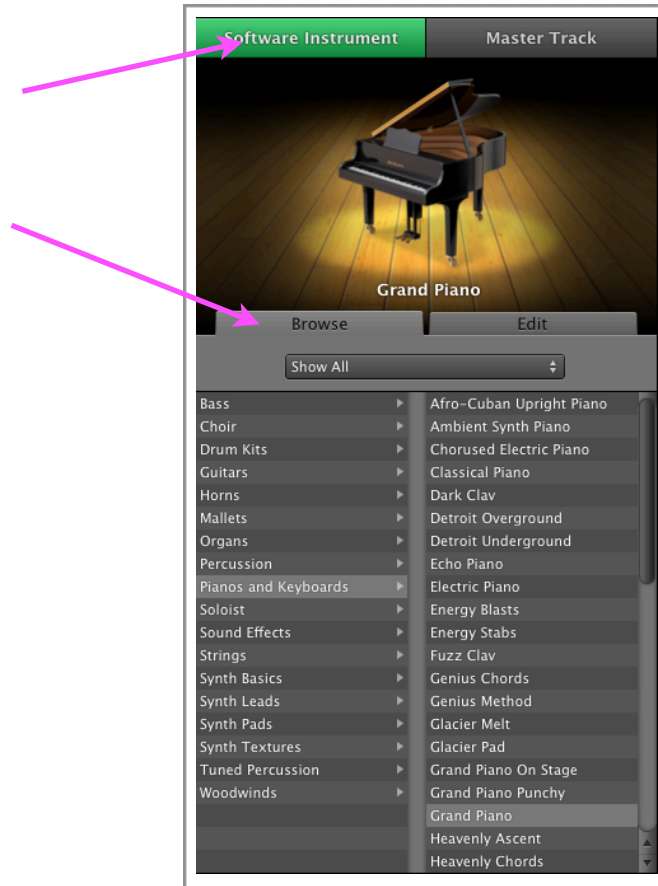


• Choose **software instrument** and press **create**



Step 2 - Choosing an instrument

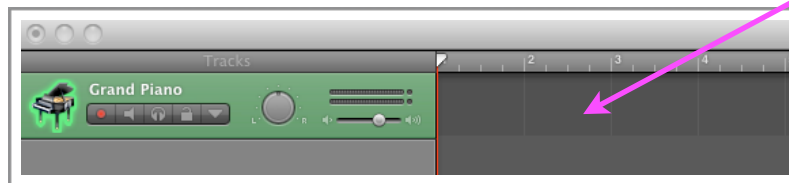
- Instructions:
- By default a grand piano instrument is chosen
 - On the right hand side of the screen you should see the following dialog



- Choose the **software instrument** tab
- Choose the **browse** tab
- Choose an a family of instruments on the left such as bass, choir, drum kits, etc
- Choose a specific instrument from that family of instruments

Step 3 - Inputting notes (without a MIDI keyboard)

- Instructions:
- Position the mouse cursor in the **track timeline**

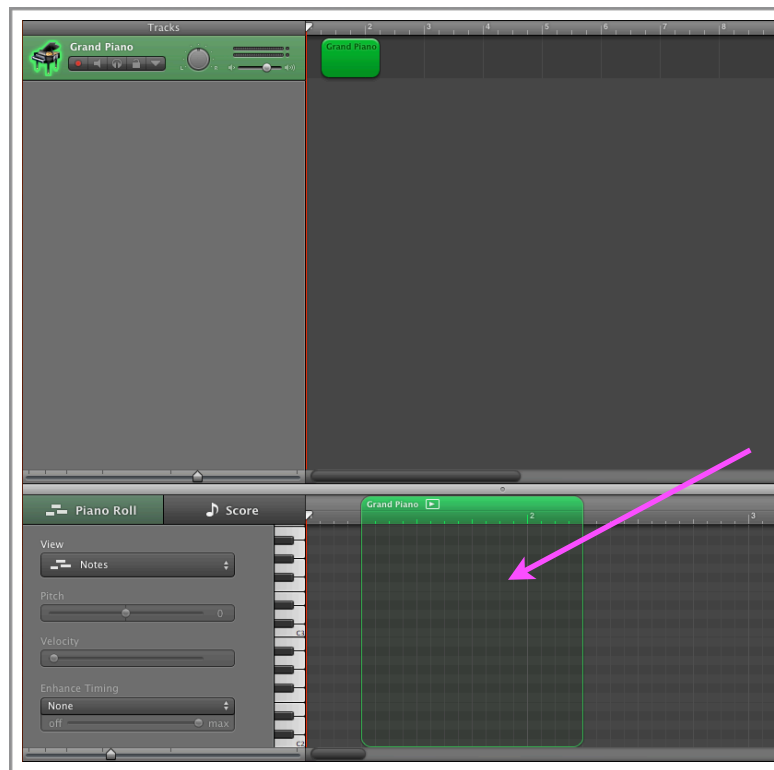


- Hold down the **⌘** key so that a **pencil** mouse cursor appears

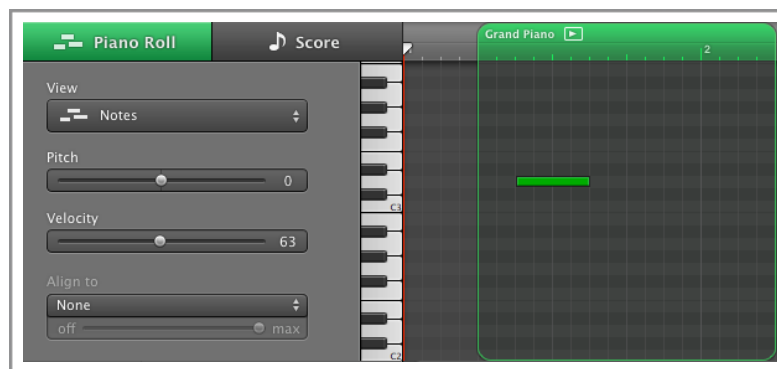
- Click the mouse button to create a **region** that will appear as a green block



- Double-click on the **region** and the bottom half of the screen will turn into a **piano roll** where you can create and edit notes

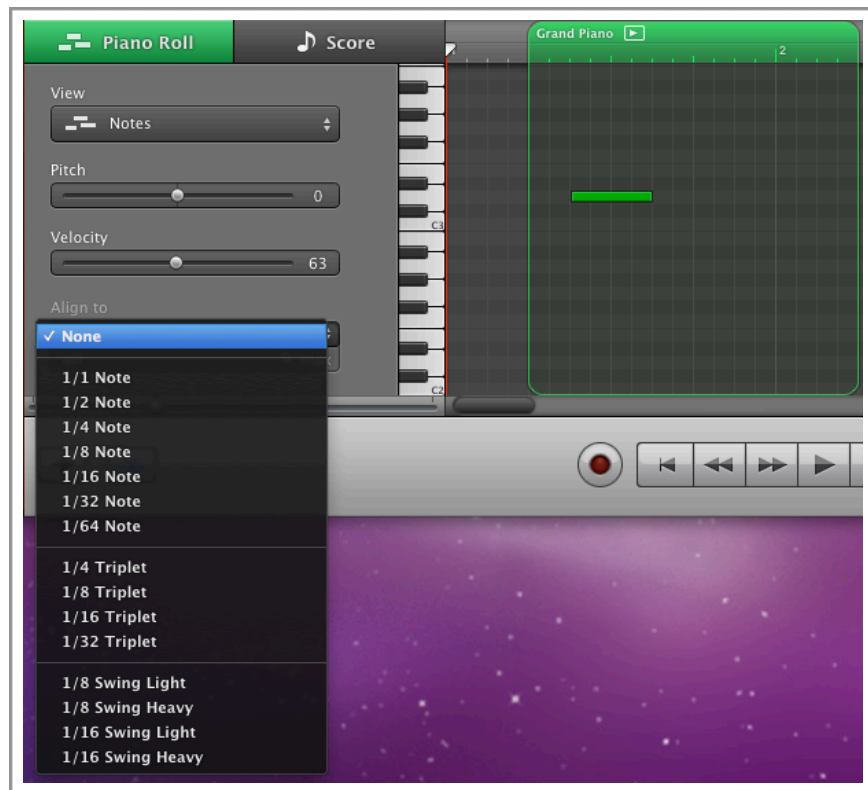


- Create a note by placing the mouse on the **piano roll**, holding down the **⌘** key and clicking on the **piano roll**
 - Notes will appear as green horizontal lines



Step 3 - Editing notes using the piano roll

- Instructions:
- The **duration** of a note can be altered by dragging the beginning or end of the note on the **piano roll**
 - The **pitch** of the note can be changed by clicking the middle of the note and dragging it up or down
 - Notes can be automatically aligned to specific rhythm values so that they are more precisely in time by clicking on the **align to** drop down menu of the **piano roll** and specifying the note value you would like notes to align to
 - This process is known as **quantizing**



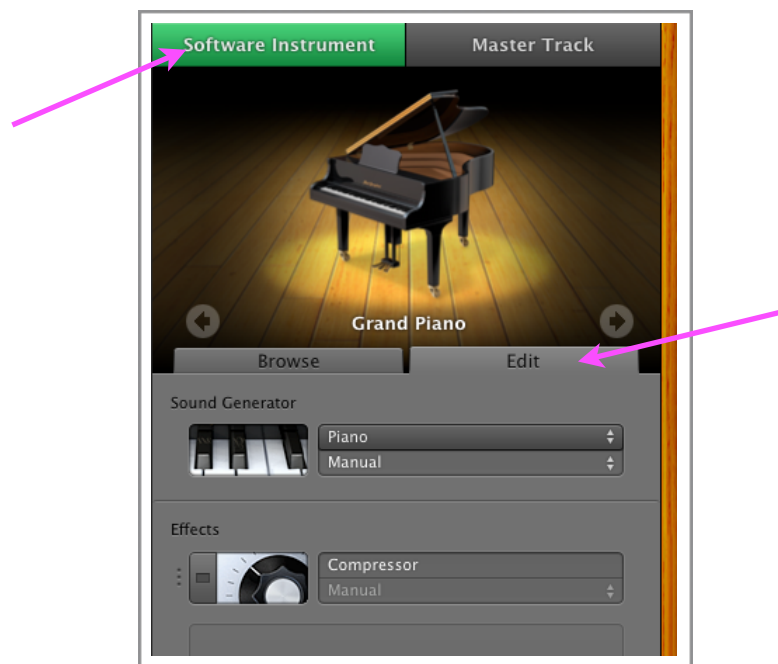
Lesson Three – Mixing and Adding Effects

Step 1 – Creating a Reverb Effect

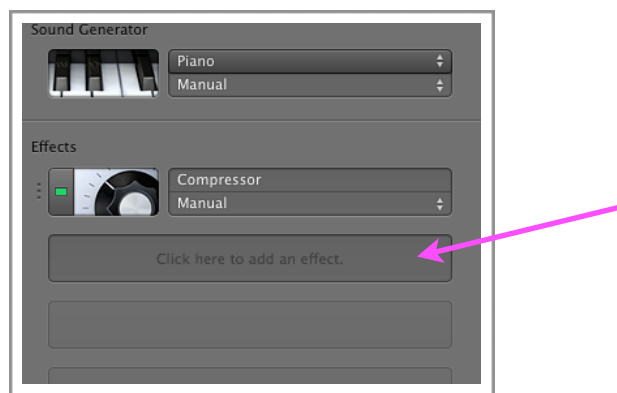
Purpose: Students will learn how to create effects that will enhance their previously created GarageBand projects. The reverb effect is one of the easier effects to understand so they will start here. Reverb gives an “echo-y” effect. If a piano is played in an old large cathedral, it will echo a lot more than if it is played in a small room with lots of carpet. Sometimes putting reverb on a track will give it more presence.

Instructions:

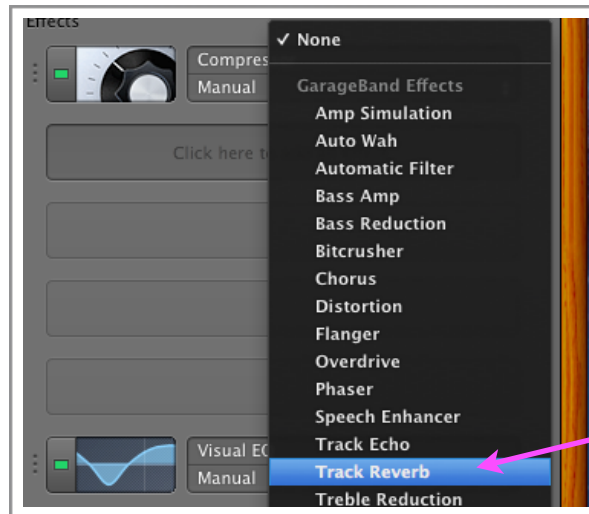
- Click on the **software instrument** tab
- Click on the **edit** tab below



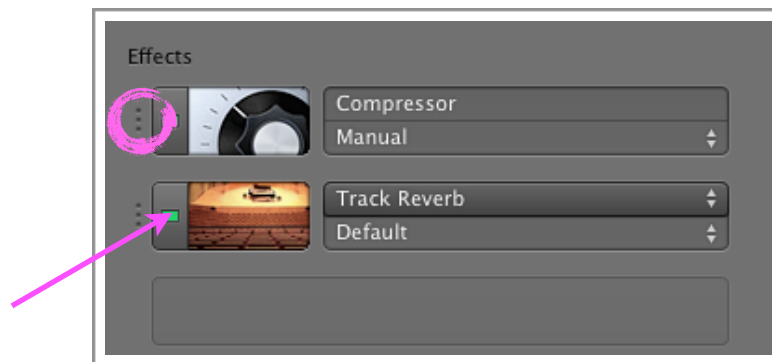
- Below the **Compressor** effect (more on that in the appendix) are the slots for effects
- Click on one of the slots



- Select **Track Reverb** from the list that appears



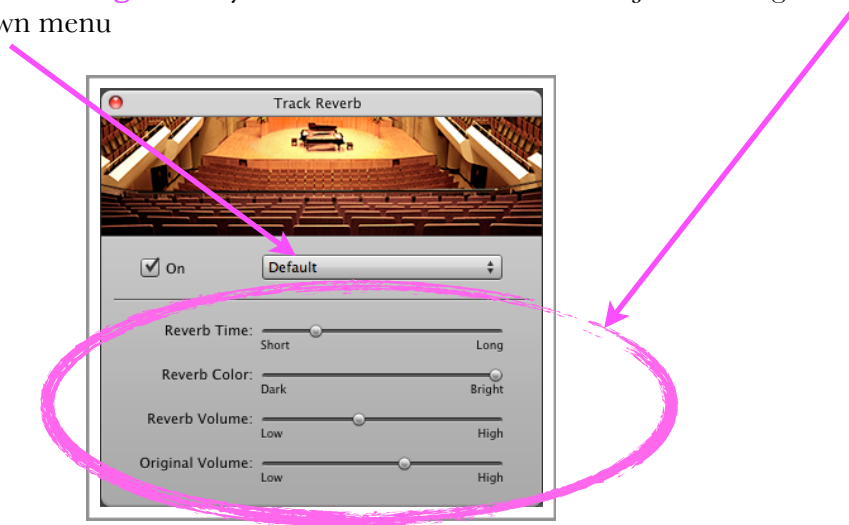
- The green light to the left side indicates that the effect is on
 - The effect can be toggled on/off by pressing the light
 - The **settings** of the effect will not be deleted if it is turned off



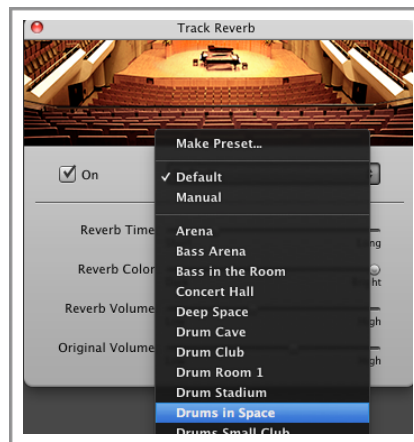
- The three vertical dots allow each effect to be reordered
 - Order actually matters!
 - Think of order like BEDMAS in math $(2 + 3) \times 2$ is different from $2 + 3 \times 2$
The first answer is 10 whereas the second answer is 8 due to order of operations
- Click on the picture to the right of the green light to adjust the effect's **settings**

Step 2 – Creating a Reverb Effect

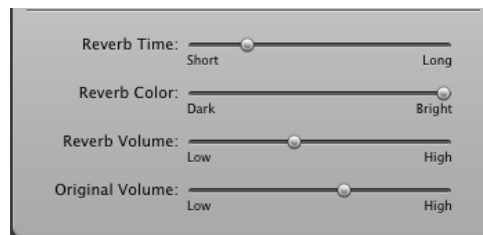
Instructions: • The default **settings** for any effect will be on but can be adjusted using the controls or the dropdown menu



- Click on the dropdown menu where it says default to select a reverb preset



- There are 4 controls on the reverb effect
 - **Reverb Time** determines the length of the echo
 - **Reverb Color** determines the timbre of the echo
 - **Reverb Volume** determines the volume of the echo
 - **Original Volume** determines the volume of the original recording



Assignment

Overview

Create a composition of any style using GarageBand with the following parameters:

- Length: 2 - 5 minutes
- Loops: At least 2 different loops
- Instruments: At least 2 different instruments
- Effects: At least 2 different effects overall (not per track)
 - You may use presets or tweak the effects yourself

...and with the following restrictions:

- You are not allowed to use existing samples longer than 4 seconds long

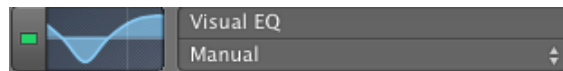
Tools

GarageBand 2009
MIDI keyboard
GarageBand help file

Appendix - Additional Effects

Overview: When students begin learning how to produce one of the major complaints for those with keen ears is “Why doesn’t my song sound like the songs I listen to?” or “Why is the sound quality so bad?” Students are used to hearing professional sounding tracks. What they don’t know is that it’s not just about recording and editing. That’s only the tip of a massive iceberg! Without getting into too much detail, adding effects and mixing tracks will bring them closer to their goals. Effects may be used on **software instrument** or **real instrument** tracks

Equalizer (EQ)

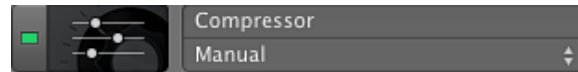


Purpose: Imagine being in a classroom where there are 20 kids yelling 20 different things at the same volume. It would be very hard to distinguish who is yelling what right? This is where the EQ comes in. It basically separates sounds by their frequencies. If the lower frequencies of kid #1 is the most interesting part of their sound then you can boost the low frequencies. Maybe kid #2s mid-ranged frequencies are what you want to hear so you would boost those frequencies. Without EQing each sound, the overall sound is “muddy” and indistinguishable. The same is true for instruments. Each instrument has their role and has a spot to fill in the frequency spectrum. The EQs job is to pull out the best frequencies from each sound so that you end up with a very clear sound, not one that’s muddy.

GarageBand: Each track has a built-in EQ called **Visual EQ** or you can alternatively use **AUGraphicEQ** or **AUParametricEQ**

Resources: Refer to the end of this document for an article/chart on EQ

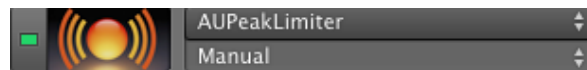
Compressor



Purpose: This is one of the most important effects used today. For example, let's say you were recording a vocalist who is singing a song with a huge dynamic range. The song ranges from literal whispers to rock-like yelling. In order to hear the whispers you'll have to crank up the volume, but when they start yelling, your volume will distort. The solution is the compressor! The compressor essentially reduces a loud signal or boosts a quiet signal sort of like using your hands to squash a wide sandwich to make it more narrow. After compressing a track, volume issues won't be as much of an issue.

GarageBand: Each track has a built-in compressor called Compressor or you can alternatively use **AUMultibandCompressor**

Limiter



Purpose: A limiter does exactly what its name says; it limits the sound. Any sound over 0 dB will "red line" or "pique" which means that it will sound distorted. Every single one of the tracks should produce sound up to or below 0 dB. To ensure that this happens, you can apply a limiter effect to a particular track. Any sound that's louder than 0 dB (or whatever volume limit you set it to) will be limited from going higher.

GarageBand: **AUPeakLimiter**

There are innumerable more effects. GarageBand has a limited amount of effects, but it definitely has the essential ones that are used.

Tips

- Additional effects can be added to GarageBand, known as Audio Unit Effects (AU effects)
 - They range in price from free to hundreds/thousands of \$ like AutoTune or Waves
- Any effect that is too noticeable or overbearing is generally not a good use of that effect
- Students should be able to explain why they used a particular effect

Resources

Title: The Complete Lesson On Getting Started With EQ (website)

Source: <http://www.recordingwebsite.com/articles/eqprimer.php>

Title: KVR Audio Effects and Instruments (website)

Source: <http://www.kvraudio.com/get.php>

- A great source for lots of free instruments and effects

Title: The Mixing Engineer's Handbook (book)

Source: <http://www.amazon.ca/Mixing-Engineers-Handbook-Second/dp/1598632515>

- An excellent resource that goes over everything you'd need to know to run a studio